

PRELIMINARY OBSERVATIONS ON THE TREATMENT OF GONORRHOEA WITH KANAMYCIN SULPHATE BY INTRAMUSCULAR INJECTION*

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The frequency of penicillin resistant strains of gonococci and the danger that penicillin may mask concomitant syphilitic infection, together with the aural and renal hazards of streptomycin, encourage the trial of other antibiotics in gonorrhoea. Having already studied the use of oral trisulphazine-aureomycin in the treatment of gonorrhoea (Piguet and Foerster, 1954) we have recently used an injectable preparation which offered a safer method of treating the type of patient seen in our clinic, many of whom are North Africans and foreigners who have difficulty in understanding and following therapeutic directions.

This was our principal reason for welcoming a trial of intramuscular Kanamycin sulphate for gonorrhoea. Moreover, this antibiotic did not seem to entail the same risk of serious or even fatal reactions as sometimes occurs with penicillin, nor did it have any effect on intercurrent treponemal infection. However, as with streptomycin, there is a slight risk of renal or cochleo-vestibular complications, but these are negligible with the very short courses of treatment usually given in cases of gonorrhoea. As a further precaution, all patients who had had previous renal or aural symptoms were excluded from the trial.

The treatment of gonorrhoea with Kanamycin sulphate has already been reported, mostly from abroad. Ichikawa (1958) treated sixteen men and two women, giving the men 1 to 2 g. daily to a total of 1 to 6 g., and the women up to 10 g. In fifteen acute cases, he had thirteen successes and two failures.

The longest study so far undertaken is that of Marmell and Prigot (1959, 1960), who treated 124 cases of gonorrhoea with Kanamycin sulphate using four different treatment schedules (Table I).

TABLE I
FAILURE RATE REPORTED BY MARMELL AND PRIGOT
(1958-1959)

Daily Dose (g.)	No. of Days	Failure Rate (per cent.)
1.0	3	0
1.0	2	20
0.5	3	0
1.0	1	62

In France, very few trials have so far been published: Vigneron (1959) treated two cases with injections of 2 g. Kanamycin 24 hours apart, and a cure was effected by the first injection; Huriez and Jamain (1960) reported favourable results in eleven cases given 1 g. daily for 8 days.

Present Investigations and Results

We have used Kanamycin in three dosage schedules in 48 male cases of gonorrhoea. The results are shown in Table II (opposite).

Discussion

Our results show that 1 g. Kanamycin is usually insufficient to cure gonorrhoea, because the percentage of failures with this dosage is about 50 to 60 per cent. But such failure can be overcome by continuing the antibiotic from the 2nd to the 5th day after the initial injection, which proves that early resistance does not occur.

That one failure was seen amongst those treated with a maximum dose of 3 g., while there were no failures in those treated with less than 2 g., appears to be fortuitous and merits no special conclusion. With a total dose of 2 g. Kanamycin sulphate in 2 days, the proportion of failures in male gonorrhoea is less than 10 per cent., the true rate being probably about 5 per cent.

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TABLE II
RESULTS IN 48 MALE CASES OF GONORRHOEA

Daily Dose (g.)	No. of Days	No. of Cases	Complete Success	Delayed Improvement and Cure without Other Treatment	Failures	Notes
1	3	16	8 4: 24 hrs after 1st injection 3: 24 hrs after 2nd injection 1: 24 hrs after 3rd injection	5 Urethra became dry between 4th and 8th day	3 (1 virus urethritis* 1 with Gram-positive organisms† 1 gonococcal urethritis‡)	Only one real failure with gonococci (Rate 6·2%)
1	2	25	17 All within 24 hrs of 1st injection	7 Slight serous discharge until 7 days after 2nd injection	1 (1 with Gram-positive organisms)§	No failure with gonococci
1	1	7	3 All between 24 hrs and 5 days of the single injection.	—	4 (4 with gonococcal urethritis)	**3 cured by further course of Kanamycin. Only one real failure††

* Discharge appeared on 8th day; cured with trisulphazine-aureomycin.

† Responded to chloramphenicol.

‡ No response to extra dose of 1 g. Kanamycin; cured by streptomycin.

§ Persistence of urethritis until 6th day; responded to trisulphazine-aureomycin on 8th day.

** Two responded to extra dose of 1 g. Kanamycin on 2nd or 3rd day. One responded to further dose of 2 g. Kanamycin on 5th day.

†† No response to two doses of 1 g. Kanamycin separated by 2 days and a third course of 2 g.; cured by streptomycin and trisulphazine-aureomycin.

In view of the 50 to 60 per cent. early failures with a single injection, it appears that treatment of acute male gonorrhoea with Kanamycin sulphate should consist of at least 2 g. given in the course of two successive days. With this schedule cure follows in about 95 per cent. of cases, indicating that Kanamycin sulphate is one of the most active and safe antibiotics that can be used in cases of male gonorrhoea. In addition, there is a psychological advantage in dealing with North African patients; the doctor is almost forced to give treatment by injection, if he does not wish to be accused of using only "old women's" remedies. Furthermore, this method ensures that gonorrhoea is treated in the quickest and most efficient way from the point of view of spread of infection.

Our experience with Kanamycin in female cases of gonorrhoea is still too limited to permit firm conclusions to be drawn. Nevertheless, in the three cases we treated (the first with 1 g. for 5 days, the second with 1 g. for 2 days, and the third with a single injection of 1 g.), three clinical and bacteriological cures resulted. In the patient who received a single injection (Kanamycin was given because she was sensitive to penicillin and streptomycin), the leucorrhoea disappeared and bacteriological cure occurred within a few hours of the injection.

No allergic manifestations were seen. Two patients experienced local pain at the site of the injection, but this did not last longer than 12 hours.

Summary

The treatment of 48 male cases of gonorrhoea with

intramuscular injections of Kanamycin sulphate is reported.

Sixteen patients received 1 g. on three successive days; one failure was observed which required treatment with streptomycin.

25 patients received 1 g. on two successive days; no true failure was observed.

Seven patients received a single injection of 1 g.; there were only three immediate successes but re-treatment with one or two additional injections of 1 g. produced a cure in three of the four failures.

A single injection of 1 g., although often producing complete dryness of the urethra 24 hours later, does not appear to give sufficient security, because 60 per cent. of the early failures occurred in cases in which the dosage was limited to a single injection. Although relapse of the gonococcal urethritis in such cases is frequent, it responds to further treatment with Kanamycin.

Three cases of gonococcal leucorrhoea in women were treated with success.

No allergic manifestations were observed.

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Observations préliminaires sur le traitement des gonococcies génitales par le sulfate de Kanamycine en injections intramusculaires

RÉSUMÉ

L'auteur apporte son expérience sur le traitement de 48 cas d'urétrite gonococcique masculine traités par le sulfate de Kanamycine par voie intramusculaire.

16 cas reçurent 1 g. trois jours de suite; un seul échec réel fut observé et nécessita le recours à la stréptomycine.

25 cas reçurent 1 g. deux jours de suite, et sur cette série aucun échec réel ne fut observé.

7 cas reçurent 1 g. en une seule injection; dans cette série il n'y eut que trois succès immédiats, mais sur trois

des quatre échecs observés, la reprise de la Kanamycine apporta la guérison après une ou deux injections supplémentaires d'un gramme.

Une injection d'un gramme, bien que l'on obtienne souvent l'assèchement complet du canal 24 heures après, ne paraît donc pas donner une sécurité suffisante, car l'on observe près de 60 % d'échecs primitifs si l'on se limite à cette seule injection. Bien que l'on assiste fréquemment à la récurrence de l'urétrite gonococcique, celle-ci reste néanmoins sensible à la reprise de la Kanamycine.

Trois cas féminins de leucorrhées gonococciques, furent traités avec succès.

Aucun incident d'ordre allergique n'a été observé.